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Gordon E. Mccray

Wake Forest University, gmccray@wfu.edu

Betsy Hoppe

Wake Forest University, hoppe@wfu.edu

Tamara Greenwood

Wake Forest University, greenwtm@wfu.edu

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STRATEGIES FOR SUPPORTING USER POPULATIONS WITH DIVERGENT CAPABILITIES IN A TECHNOLOGY-INTENSIVE LEARNING ENVIRONMENT

[Gordon E. McCray*](#)

Assistant Professor of Information Systems

e-mail: gmccray@wfu.edu voice: 910.759.4914 fax: 910.759.6133

[Betsy Hoppe*](#)

Assistant Dean and Director of Information Technology

e-mail: hoppe@wfu.edu

[Tamara Greenwood*](#)

Instructor

e-mail: greenwtm@wfu.edu

*The Wayne Calloway School of Business and Accountancy

Wake Forest University

Winston-Salem, NC, USA, 27109-7285

Abstract

In the Fall of 1996, Wake Forest University implemented an ambitious initiative aimed at enriching the educational experience of all undergraduate students. This initiative, dubbed The Plan for the Class of 2000, has as its centerpiece the widespread implementation of information technology both in and outside the classroom. While the technology infrastructure largely is in place, much effort remains to infuse the use of technology in the educational process. Significant resources are required to further the development of innovative applications of information technology. Early adopters of emerging technology require support for the exploration and development of leading edge technologies while mid- to late-adopters must be coached in the potential application of existing technology. These divergent user groups unwittingly vie for university resources, and point to a need for a systematic means of considering the needs of all user groups.

Introduction

In 1994, the faculty, students and administration of Wake Forest University began developing an outline for what was to become The Plan for the Class of 2000(hereafter, the Plan). The goal of the Plan is to enrich further the undergraduate education through seminars for first year students, an increase in the number of faculty and IT support staff, a decrease in class size, additional scholarship funds and financial aid, and finally, the issuance of IBM ThinkPad laptop computers to all first year students. This Plan, ratified by the faculty, was implemented in the Fall of 1996. Subsequent to the adoption of the Plan, a customized Lotus Notes template was developed that coupled typical Notes functionality with features tailored to the Wake Forest environment. As expected, some faculty immediately found interesting and, in some cases, innovative uses for their newfound resources. Others languished, uncertain of whether and how to use the technology toward the betterment of the learning experience. The University soon recognized the presence of late-adopters and began offering voluntary workshops to explore potential uses of the technology.

Early-adopters, meanwhile, found comparatively few resources at their disposal. Given the amount of effort required to address the needs of a multitude of mid- to late-adopters, it appeared that early-adopters would require supplemental support. The allocation of University resources to these dichotomous faculty groups is an issue that now faces those administering the Plan, and is the focus herein.

The Problem of Sustained Advantage

While computer-enhanced learning increasingly is found both in and outside the classroom, this trend is a relatively new one. Increasingly, institutions of higher learning are deploying IT in the pursuit of what Swanson (1994) refers to this as Type III innovation, in which organizational boundaries are redefined through technology. The Wayne Calloway School of Business and Accountancy at Wake Forest University, for example, is pursuing the formation of "virtual partnerships" with business organizations. In these

relationships, faculty and students will interact electronically with practitioners in the various business disciplines in the form of on-line discussion forums, collaborative case studies, and the like. This model likely will be extended to include students and faculty from other institutions, as well. Yet, few schools possess the capacity to engage in IT initiatives that require multiple new hires and major infrastructure expenditures. An institution of higher learning that deploys IT in a comparatively innovative manner, however, may distinguish itself from its competition. In an era characterized by escalating tuition coupled with a consumer who is increasingly reluctant to pay the high tuition fees charged particularly by private institutions, the distinguishing of oneself from the competition has taken on paramount importance. This, together with a commitment to providing a superior education, drives The Plan for the Class of 2000. Simply, the ubiquitous presence of IT in the learning environment is meant to attract more and better students to the institution. Two conditions must be met to support such an undertaking. First, mid- to late-adopters (or, as Rogers (1983) refers to them, the "early majority" and the "late majority") continually must find support in the form of training and, in some cases, financial support to acquire IT resources to support their teaching and research goals.

Second, early-adopters (or, again in the lexicon of Rogers (1983), the "innovators" and the "early adopters") continually must find human and financial resources sufficient to explore innovative and useful technologies. Without support for mid- to late-adopters, a technologically elite group of faculty will quickly outpace other users, fragmenting the cohesive movement toward the implementation of IT and creating an IT utilization "gap" between groups of users. Competitive advantages thereby diluted. Weak support for early-adopters, however, slows the diffusion/infusion of exciting new technologies, allowing other institutions to "leap frog," also diluting the desired competitive advantage. Importantly, the motivations for IT adoption by these different user groups are notably different. The early adopters are more likely to pursue innovative uses of IT absent the urging of change agents (Rogers, 1983). These users are therefore progressing in their adoption of IT in their courses at a rate unchecked by administrators of an IT initiative, being limited only by the availability of requisite resources. Mid- to late-adopters, however, wait for demonstrated widespread adoption of a given technology before exploring its potential themselves (Rogers, 1983). Herein lies a particular challenge for champions of IT initiatives in the university setting: a critical mass of users of a given technology must be assembled such that mid- to late-adopters perceive sufficiently widespread use of that technology to themselves attempt to integrate it into their courses. The challenge, then, is to provide sufficient resources to allow early-adopters continually to explore the outer bounds of IT in higher education while assuring that mid- to late-adopters do not become estranged from early-adopters. Only then may the institution expect to sustain its distinction from its peers.

Meeting the Challenge: Supporting Diverse

User Populations

In an effort to address the simultaneous needs of shrinking the IT utilization gap and supporting early-adopters in their quest for innovative applications of technology, several initiatives have been undertaken. The motivation, mandate and impact of each is discussed below.

STARS: Meeting the Needs of Mid- to Late-Adopters A recent initiative dubbed The Student Technology AdvisoRS (STARS) program is designed to provide faculty members with broad based technology support via student assistants. Still in its infancy, this program will grow in the coming two years to a total of 50-60 students. These students are charged with providing to their assigned faculty member virtually any requested technology service. Responsibilities may span simply scanning materials for electronic posting and Web page maintenance to the construction of Web pages and Lotus Notes databases or templates. The STARS program aims to create a sense of community as faculty and students work collaboratively toward leveraging the university's technology investment. Students are paid a competitive wage and work a maximum of 15 hours per week. A STARS student may expect to remain with the same faculty member for as long as one to two years, allowing the student-professor team to pursue significant projects. A challenge facing the STARS program, however, is that students are required to possess no pre-qualifications. The University must therefore provide the requisite training.

CELI: Meeting the Needs of Early-, Mid- & Late-Adopters A very recent development, the Computer Enhanced Learning Initiative (CELI) is intended to foster discussion and exploration of potential uses of IT in education, and then to disseminate that information to the university community. CELI is guided by five tenure-track faculty members who rotate through a directorship position. CELI is supported by a grant that will provide release time 1) to faculty members who, heretofore, have made little use of IT but who have expressed a desire to integrate technology into their courses, and 2) to faculty members pursuing innovative computer-based teaching strategies. Over five years, 80 release time grants may be awarded. The CELI program also coordinates visiting lecturers, visits to other campuses and research, all aimed at exploring the potential of IT as a learning tool. Though CELI, like STARS, is aimed at mid- to late-adopters, it can be a significant source of support for the work of early adopters.

SNAP: Providing opportunities for Students with Advanced IT Knowledge An initiative of The Wayne Calloway School of Business and Accountancy, the Student Network Associates Program (SNAP) seeks to provide those students with a working knowledge of IT the opportunity to provide support both to individual faculty members as they pursue their projects, and to the IT support staff as they enhance and maintain networks and publicly available resources. The SNAP program has proven, over the course of three years, to be particularly beneficial to students during the interviewing process, since it demonstrates both applied technical skills and an ability to perform responsibly under minimal supervision.

Conclusions

As institutions of higher learning increasingly deploy information technology toward the betterment of the learning process, there looms a significant risk of creating an IT utilization gap in which early-adopters significantly outpace mid- to late-adopters in their use of technology. This gap weakens the movement toward innovative applications of IT as it dilutes the sense of an organizational move toward computer-enhanced learning. To avoid this gap, institutions must recognize the need to tailor support to these different user groups, and to target clearly defined programs to these constituencies. Such targeted support allows early-adopters to advance rapidly their use of IT while preventing mid- to late-adopters from becoming victims of the IT utilization gap.

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